

### **REMARKS**

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested. Claim 13 is amended to a correct typographical error. Claim 21 is amended to a correct grammatical error.

#### **Rejection of Claims 1-5, 7-16, 18-22 and 27-35 Under 35 U.S.C. §103(a)**

The Office Action rejects claims 25 and 26 under 35 U.S.C. §103(a) as being unpatentable over Lee et al. (U.S. Patent No. 5,748,789) ("Lee et al.") in view of Lennon et al. (U.S. Patent No. 6,516,090) ("Lennon et al."). Applicant respectfully traverses this rejection and submit that for several reasons claims 1-5, 7-16, 18-22 and 27-35 are patentable and in condition for allowance.

First, Applicant asserts that one of skill in the art would not have sufficient motivation or suggestion to combine Lee et al. with Lennon et al.

To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. First, there must be some motivation or suggestion, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to combine the references. Second, there must be a reasonable expectation of success, and finally, the prior art references must teach or suggest all the claim limitations. The Examiner bears the initial burden of providing some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP 2142.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not

sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). MPEP 2143.01.

Furthermore, if the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. MPEP 2142.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991). MPEP 2143.01.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

With these principles in mind, Applicant submits that when the suggestive power of each reference is properly analyzed that they would not lead one of skill in the art to combine their

teachings. On page 5 of the Office Action the Examiner concedes that Lee et al. do not disclose that the predefined encoder model is selected from a plurality of predefined encoder models and each encoder being associated with one predefined model of the plurality of predefined models. The Office Action then asserts that Lennon et al. teaches a predefined model selected from a plurality of predefined models and each encoder being associated with one predefined model of the plurality of predefined encoder models at column 13, lines 49-65. The Office Action concludes that it would be obvious to one of ordinary skill in the art to combine the teachings of Lee et al. and Lennon et al. as a whole for efficiency and to precisely encode spatial and temporal video data while maintaining high image quality, citing column 3, lines 50-57. (Applicant notes that he is confused at whether Lennon et al. or Lee et al. is meant in the reference to a column 3, lines 50-57 in as much as that portion of either reference appears to be relevant.) Applicants traverse this analysis and note that Lennon et al. teaches an automated video interpretation system which has a purpose of interpreting a digital image signal to understand the content of the image through identification of significant objects or regions in the image and analyzing their spatial arrangement.

Figure 1 shows the basic configuration of Lennon et al.'s invention. Feature 100 is a digital video source such as a video camera. It is notable in the context of the suggestive power of to one of skill in the art to combine the teachings with Lee et al. that the digital video interpretation system 116 simply receives information from the digital video source such as a video camera. The video camera is the device which performs the video coding and the invention of Lennon et al. simply receives previously encoded video information that is then segmented and analyzed according to their invention. Column 5, lines 4-11 of Lennon et al. teach that the various embodiments disclosed in their patent discuss some specific details regarding video encoding techniques and sensor types, but they make clear that one of skill in the

art may practice the invention "without the specific details. In other instances, well-known features, such as video formats, audio formats, etc., have not been described in details [sic] so as not to obscure the invention." In other words, it is clear from this language as well as the other language throughout the reference, that the particular video format of the received video data is irrelevant to their invention and in fact details regarding encoding techniques have purposely avoided so as to not obscure the invention. For example, column 5, line 20 teaches that "preferably that a digital video source is a digital video camera." Each reference to the video source fails to provide further details regarding what type of coding was performed by the video camera. Clearly, the invention of Lennon et al. purposely and expressly ignores the coding method for the data source. Therefore, only the minor references to MPEG 2 and MPEG 4 in column 1 in the description of the prior art and introduction of the invention are provided. In sum, one of skill in the art would easily recognize as they studied Lennon et al. that their invention is clearly focused on segmenting and analyzing digital video data from any digital video source and that the encoding process would appear to be irrelevant to the inventors.

In contrast, Lee et al. clearly focus entirely on a method to implement an object-based video encoder or decoder that uses shape information to describe the boundary of groups of pixels representing an object in the sequence of video frames. As they introduce in their field of the invention in column 1, their focus is clearly on the object-based video coding process. The details throughout the disclosure of Lee et al. further confirm that their focus on object based encoding is certainly the entire focus of the Lee et al. inventors. With these introductions in mind, Applicant notes that the Office Action asserts that the reason one of skill in the art would combine the teachings of Lee et al. with Lennon et al. is to "as a whole" precisely encode spatial and temporal video data while maintaining a high image video quality. Inasmuch as Lennon et al. are agnostic regarding the type of encoding which may be performed by their digital video

source, Applicant respectfully submits that there is no increase in efficiency or precision regarding encoding spatial and temporal video data while maintaining high image quality by combining the references of Lee et al. and Lennon et al. Even the references in column 1 in Lennon et al. to MPEG 2 and MPEG 4 do not provide the benefits identified on page 5 of the Office Action. These references are merely used in the description of the prior art section and provide general comments such as visual and audio signals being often correlated in the sense the information about the content of the video signal can be found in the audio signal and vice-versa. The correlation is explicitly recognized in such coding formats such as MPEG 4 where units of coding information are audio visual objects having spatial and temporal localization in a scene. Column 1, lines 27-33. Applicant respectfully submits that the Examiner certainly has not cited any benefits identified in the introduction of Lennon et al. which can be attributable to the reason one of skill in the art in the art might have motivation to combine these references.

Accordingly, Applicant respectfully submits that these references are not analogous, not in the same field of invention and that one of skill in the art would not, by a preponderance of the evidence, have sufficient motivation or suggestion to combine these references. Accordingly, for these reasons, Applicant submits that claims 1-5, 7-16, 18-22 and 27-35 are patentable and in condition for allowance.

Applicant further submits that, even if combined, Lee et al. and Lennon et al. fail to teach each limitation of the claims. Applicant initially notes that the rejection beginning on page 3 based on the combination of Lennon et al. and Lee et al. is somewhat confusing to follow inasmuch as limitations from the various claims 1, 9, 13, 15, 18 and 21 seem to be almost randomly selected and then compared to the teachings of Lee et al. and then finally some of the teachings of Lennon et al. are referenced to complete the rejection of the claims. However, Applicant notes that in this process a basic limitation, for example, of claim 1 which requires

“routing each of at least two video content portions to one of a plurality of encoders based on a respective one of the predefined models assigned to each of the at least two video content portions” is simply never addressed in the Office Action. Accordingly, Applicant would respectfully submit that for this basis alone the Office Action has not set forth a complete analysis in which each limitation is taught by one or more references. Applicant further notes that the absence of any analysis of this particular limitation is particularly relevant given that on page 4 of the Office Action the Examiner appropriately concedes that object coder 1504-1508 encode video portions associated with the generic model. In other words, Applicants believe that it is appropriately established that each of the encoders referenced in Figure 33 use the same coding method. For example, in column 43, lines 3-5, Lee et al. teach “the coding units 1504-1058 use a coding method such as a wavelet or DCT coding to code inter and intraframe texture data.” Furthermore, column 43, lines 6-9 states “while we provide specific examples of shape, motion, and texture coding, the specific coding methods are not critical to the invention and conventional shape, motion and texture coding methods can be used.” Accordingly, it is clear from this reference and appropriately referenced in the Office Action that these various coding units 1504-1508 are simply conventional coders and there are no distinguishing features between them. Accordingly, Applicant respectfully submits that the step of routing each of the at least two video content portions to one of a plurality of encoders based on a respective predefined models assigned to each of the at least two video content portions is certainly not taught in the references and as mentioned above is already absent from the analysis in the Office Action.

Also, on page 4, the Office Action asserts that the step of comparing first descriptors associated with at least two video portions and second descriptors associated with subsegments and the regions of interest with corresponding stored model descriptors from a plurality of predefined content models is taught in column 51, lines 4-59, and column 50, lines 18-41. The

Office Action asserts that there is a plurality of flags that can aid in the determination of the video portions of the video content. Applicants believe that with reference to claim 1 that this is the Office Action's analysis to compare the step of "comparing descriptors associated with each of the at least two video content portions with corresponding stored model descriptors from a plurality of predefined content models." Applicant traverses this analysis and notes that column 51 of Lee et al., lines 4-59, merely disclose the codes and data associated with a macroblock structure. A picture of the macroblock is shown in column 51 and the various codes relate to such things as codes indicating a change in the quantizer for an object, block transparency status bits, motion vector information, variable length code information and so on. There is nothing in these codes and data that is referenced as being related to or being associated with each of the at least two video content portions of the video content. Rather, these are associated with a basic macroblock structure. Thus, even if the Examiner were correct in the analysis in which the Examiner asserts that column 42 teaches, with regard to its shape information, the step of assigning a predefined model to each of the at least two video content portions of the video content then for the Examiner's analysis to be corrected the codes and data in the macroblock structure would have to be limited to the shape information in column 42.

In other words, the Office Action's analysis renders the interpretation of what the "at least two vide content portions" as the same thing between columns 42 and columns 51, but these columns discuss different concepts. Furthermore, the Office Action asserts that column 50 teaches a comparison of frames which is done with the shape of the first frame and contains its respective video portions in the shape of the second frame that contains its respective video portions. However, this analysis fails for the same reasons as previously stated. The Office Action now equates that "at least two video content portions" with (1) shape information associated with an object, (2) a macroblock structure and (3) first frames and second frames.

Applicant respectfully submits that the inconsistencies in the interpretation of what the at least two video content portions are in the Office Action renders its analysis inadequate inasmuch as in claim 1, for example, this is the same feature rather than three different features.

Accordingly, Applicant respectfully submits that the analysis in the Office Action is either incomplete, lacking or erroneous and thus, Applicant submits that the claim 1 is patentable and in condition for allowance for the reasons set forth above.

Claim 9 recites the step of encoding each of the at least two video portions associated with a plurality of predefined encoder models with an encoder chosen from a plurality of encoders, each of the plurality of encoders being associated with one of the plurality of predefined encoder models. Claim 9 also recites encoding each of the at least two video portions associated with the generic encoder with a generic coder. The Office Action on page 4 equates object coders 1504-1508 of Figure 33 both with the generic model as well as the encoders each being associated with one of a plurality of predefined encoder models. Applicants again respectfully submit that this is a glaring inconsistency in that encoders 1504-1508 cannot be both generic and individual coders with their individual predefined encoder models. As noted above, Applicants have established that Lee et al. clearly teach that each of these encoders are the same and it would more appropriately be characterized as a generic encoder model. Thus, the reference fails to teach the step of each of the plurality of encoders being associated with one of the plurality of predefined encoder models.

The Office Action further cites Figure 36 noting that the encoder shown is used to encode the video portions. Applicant traverses this analysis and note that Figure 36 is shown as an example of each video coder 1504, 1506 and 1508 of Figure 33 and as such merely shows the various components of each of those encoders. These components include a shape coder 1580, motion coder 1582 and texture coder 1584 which operates to code the same video portion.



Notably, column 44, lines 13-46, teaches how each of these portions of coder 1504-1508 encodes an aspect of a video portion such as the shape, motion or texture of the same video object. Accordingly, Applicant respectfully submit that claim 9 is patentable and in condition for allowance.

Claim 13 recites a method of encoding video content which includes the steps of encoding each of the at least two video content portions associated with the generic encoder model using a generic encoder and encoding each of the at least two content portions associated with one of the predefined encoder models with an encoder from a plurality of encoders. Accordingly, for the same reasons set forth above, Applicant respectfully submits that claim 13 is patentable and in condition for allowance.

Claim 15 cites routing each of the at least two portions that is not assigned a respective best encoder model from the plurality of encoder models to a generic encoder and routing each of the at least two portions assigned to the respective best encoder model of the plurality of predefined encoder models to an encoder associated with the respective best encoder model. Applicant respectfully assert that an analysis of these routing steps is simply absent from the Office Action and that there is sufficient information and analysis above to make it clear that this claim is patentable and in condition for allowance.

Similarly, claim 18 recites a method producing a bitstream coded according to video content which includes the steps of routing each of the at least two portion associated with the generic encoder model to a generic encoder and routing each of the at least two portions associated with an encoder model to the plurality of predefined encoder models to one of a plurality of encoders, wherein each encoder of the plurality of encoder is associated with one of the predefined encoder models. This step is not analyzed in the Office Action and again

sufficient details are provided above to render clear that these steps are not taught or suggested in the combination of references.

Claim 21 recites a method of encoding a bitstream using a plurality of encoders, the method comprises mapping each of at least two segments extracted from video content to a predefined encoder model and routing the at least two extracted and mapped segments to one of the plurality of encoders based on the mapping to the respective predefined encoder model. Applicant respectfully submits that these mapping and routing steps have not been analyzed in the Office Action and based on the analysis above it becomes clear that this claim is patentable and in condition for allowance.

Claims 2-5 and 7-8 each depend from claim 1 and recite further limitations therefrom. Accordingly, these claims are patentable.

Claims 10-12 each depend from claim 9 and recite further limitations therefrom and accordingly, are patentable as well.

Claim 14 depends from claim 13 and recites further limitations therefrom. Accordingly, Applicant submits that this claim is patentable as well.

Claim 16 depends from claim 15 and recites further limitations therefrom. Accordingly, Applicant submits that this claim is patentable and in condition for allowance.

Claims 19 and 20 each depend from claim 18 and recite further limitations therefrom. Accordingly, Applicant submits that these claims are patentable.

Claim 22 depends from claim 21 and recites further limitations therefrom and accordingly, Applicants submit that claim 22 is patentable and in condition for allowance.

Claims 27 and 30 each depend from claim 1 and recite further limitations therefrom. Accordingly, they are patentable.

Claims 28 and 34 each depend from claim 18 and recite further limitations therefrom. Accordingly, these claims are patentable.

Claims 29 and 35 each depend from claim 21 and recite further limitations therefrom. Accordingly, these claims are patentable and in condition for allowance.

Claim 31 depends from claim 13 and recites further limitations therefrom and accordingly, is patentable and in condition for allowance.

Claim 33 depends from claim 15 and recites further limitations therefrom and is patentable as well.

**CONCLUSION**

Having addressed all rejections and objections, Applicant respectfully submits that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Law Office of Thomas M. Isaacson, LLC, Account No. 50-2960** for any deficiency or overpayment.

Respectfully submitted,

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By: 

Correspondence Address:

Thomas A. Restaino  
Reg. No. 33,444  
AT&T Corp.  
Room 2A-207  
One AT&T Way  
Bedminster, NJ 07921

Thomas M. Isaacson

Attorney for Applicant  
Reg. No. 44,166  
Phone: 410-286-9405  
Fax No.: 410-510-1433